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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,959	04/15/2004	James D. Ballew	064747.1015	1484

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EXAMINER	
MEHRMANESH, ELMIRA	
ART UNIT	**PAPER NUMBER**
2113	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/12/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/12/2007.

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Office Action Summary	Application No.	Applicant(s)	
	10/826,959	BALLEW ET AL.	
	Examiner	Art Unit	
	Elmira Mehrmanesh	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to an amendment filed on December 15, 2006 for the application of Ballew et al., for a "System and method for detecting and managing HPC node failure" filed April 15, 2004.

Claims 1-30 are pending in the application.

Information disclosed and listed on PTO 1449 has been considered.

Claim 11 has been amended.

Claims 1-30 are rejected under 35 USC § 102.

Claim Rejections - 35 USC § 101

In response to the amendments to claim 11, the last rejections have been withdrawn.

Specification

The use of the trademark HYPERTRANSPORT™ and INFINIBAND® has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang (U.S. Patent No. 5,748,882).

As per claim 1, Huang discloses a method for managing HPC node failure (col. 4, lines 58-67). Figure 2 shows an example of a high performance node, which has at least one processor (col. 4, lines 66-67 through col. 5, lines 1-2), therefore each node could have multiple processors providing continuous availability hence high performance computing; comprising:

determining that one of a plurality of HPC nodes has failed (col. 5, lines 15-19)

each HPC node comprising an integrated fabric (col. 4, lines 66-67 through col. 5, lines 1-2). Each node contains communication links, communication ports (col. 10, lines 65-67), (col. 11, lines 60-61), and the fault tolerance socket (col. 18, lines 28-31)

removing the failed node from a virtual list of HPC nodes, the virtual list comprising one logical entry for each of the plurality of HPC nodes (col. 10, lines 45-50).

As per claim 2, Huang discloses determining that at least a portion of an HPC job was being executed on the failed node (col. 7, lines 49-55) and terminating the HPC job (Fig. 5, element 511).

As per claim 3, Huang discloses determining that the HPC job was associated with a subset of the plurality of HPC nodes; and deallocating the subset of HPC nodes (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 4, Huang discloses each entry of the virtual list comprising a node status and the method further comprising changing the status of each of the subset of HPC nodes to "available" (col. 10, lines 50-56).

As per claim 5, Huang discloses determining dimensions of the terminated job based on one or more job parameters and an associated policy; dynamically allocating a second subset of the plurality of HPC nodes based on the determined dimensions (col. 17, lines 1-21)

executing the terminated job on the allocated second subset (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 6, Huang discloses the second subset comprising a substantially similar set of nodes to the first subset (Fig. 2).

As per claim 7, Huang discloses dynamically allocating the second subset comprises: determining an optimum subset of nodes from a topology of unallocated HPC nodes; and allocating the optimum subset (col. 7, lines 5-67 through col. 8, lines 1-

9).

As per claim 8, Huang discloses locating a replacement HPC node for the failed HPC node; and updating the logical entry of the failed HPC node with information on the replacement HPC node (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 9, Huang discloses determining one of the plurality of HPC nodes has failed comprises determining that a repeating communication has not been received from the failed node (col. 17, lines 21-30).

As per claim 10, Huang discloses determining one of the plurality of HPC nodes has failed is accomplished through polling (col. 8, lines 43-63).

As per claim 11, Huang discloses software for managing HPC node failure (col. 4, lines 58-67). Figure 2 shows an example of a high performance node, which has at least one processor (col. 4, lines 66-67 through col. 5, lines 1-2), therefore each node could have multiple processors providing continuous availability hence high performance computing; operable to:

determine that one of a plurality of HPC nodes has failed (col. 5, lines 15-19)

each HPC node comprising an integrated fabric (col. 4, lines 66-67 through col. 5, lines 1-2). Each node contains communication links, communication ports (col. 10, lines 65-67), (col. 11, lines 60-61), and the fault tolerance socket (col. 18, lines 28-31)

remove the failed node from a virtual list of HPC nodes, the virtual list comprising one logical entry for each of the plurality of HPC nodes (col. 10, lines 45-50).

As per claim 12, Huang discloses to determine that at least a portion of an HPC job was being executed on the failed node (col. 7, lines 49-55) and terminating the HPC job (Fig. 5, element 511).

As per claim 13, Huang discloses to determine that the HPC job was associated with a subset of the plurality of HPC nodes; and deallocate the subset of HPC nodes (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 14, Huang discloses each entry of the virtual list comprising a node status and the software further operable to change the status of each of the subset of HPC nodes to "available" (col. 10, lines 50-56).

As per claim 15, Huang discloses to determine dimensions of the terminated job based on one or more job parameters and an associated policy; dynamically allocate a second subset of the plurality of HPC nodes based on the determined dimensions (col. 17, lines 1-21)

executing the terminated job on the allocated second subset (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 16, Huang discloses the second subset comprising a substantially similar set of nodes to the first subset (Fig. 2).

As per claim 17, Huang discloses the software operable to dynamically allocate the second subset comprises software operable to: determine an optimum subset of nodes from a topology of unallocated HPC nodes; and allocate the optimum subset (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 18, Huang discloses to locate a replacement HPC node for the failed HPC node; and update the logical entry of the failed HPC node with information on the replacement HPC node (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 19, Huang discloses the software operable to determine one of the plurality of HPC nodes has failed comprises software operable to determine that a repeating communication has not been received from the failed node (col. 17, lines 21-30).

As per claim 20, Huang discloses the software operable to determine one of the plurality of HPC nodes has failed is accomplished through polling (col. 8, lines 43-63).

As per claim 21, Huang discloses a system for managing HPC node failure (col. 4, lines 58-67). Figure 2 shows an example of a high performance node, which has at

least one processor (col. 4, lines 66-67 through col. 5, lines 1-2), therefore each node could have multiple processors providing continuous availability hence high performance computing; comprising:

a plurality of HPC nodes (Fig. 2)

a management node (Fig. 2, element 104) operable to:

determine that one of the plurality of HPC nodes has failed (col. 5, lines 15-19)

each HPC node comprising an integrated fabric (col. 4, lines 66-67 through col. 5, lines 1-2). Each node contains communication links, communication ports (col. 10, lines 65-67), (col. 11, lines 60-61), and the fault tolerance socket (col. 18, lines 28-31)

remove the failed node from a virtual list of HPC nodes, the virtual list comprising one logical entry for each of the plurality of HPC nodes (col. 10, lines 45-50).

As per claim 22, Huang discloses the management node further operable to: determine that at least a portion of an HPC job was being executed on the failed node (col. 7, lines 49-55) and terminating the HPC job (Fig. 5, element 511).

As per claim 23, Huang discloses the management node further operable to: determine that the HPC job was associated with a subset of the plurality of HPC nodes; and deallocate the subset of HPC nodes (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 24, Huang discloses each entry of the virtual list comprising a node status and the management node further operable to change the status of each of the

subset of HPC nodes to "available" (col. 10, lines 50-56).

As per claim 25, Huang discloses the management node further operable to: determine dimensions of the terminated job based on one or more job parameters and an associated policy; dynamically allocate a second subset of the plurality of HPC nodes based on the determined dimensions (col. 17, lines 1-21)

executing the terminated job on the allocated second subset (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 26, Huang discloses the second subset comprising a substantially similar set of nodes to the first subset (Fig. 2).

As per claim 27, Huang discloses the management node operable to dynamically allocate the second subset comprises the management node operable to: determine an optimum subset of nodes from a topology of unallocated HPC nodes; and allocate the optimum subset (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 28, Huang discloses the management node further operable to: locate a replacement HPC node for the failed HPC node; and update the logical entry of the failed HPC node with information on the replacement HPC node (col. 7, lines 5-67 through col. 8, lines 1-9).

As per claim 29, Huang discloses the management node operable to determine one of the plurality of HPC nodes has failed comprises the management node operable to determine that a repeating communication has not been received from the failed node (col. 17, lines 21-30).

As per claim 30, Huang discloses the management node operable to determine one of the plurality of HPC nodes has failed is accomplished through polling (col. 8, lines 43-63).

Related Prior Art

The following prior art is considered to be pertinent to applicant's invention, but nor relied upon for claim analysis conducted above.

Block et al. (U.S. Patent No. 6,918,051), "Node shutdown in clustered computer system".

Dervin et al. (U.S. Patent No. 6,952,766), "Automated node restart in clustered computer system".

Ho et al. (U.S. Patent No. 6,918,063), "System and method for fault tolerance in multi-node system".

Response to Arguments

Applicant's arguments see pages 7-13, filed December 15, 2006 with respect to the rejection(s) of claim(s) 1-30 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further

consideration, a new ground(s) of rejection is made over Huang (U.S. Patent No. 5,748,882). Refer to the corresponding section of the claim analysis for details.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmira Mehrmanesh whose telephone number is (571) 272-5531. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).